

**Downstream processing with conventional batchwise
solution blending of the prior art**

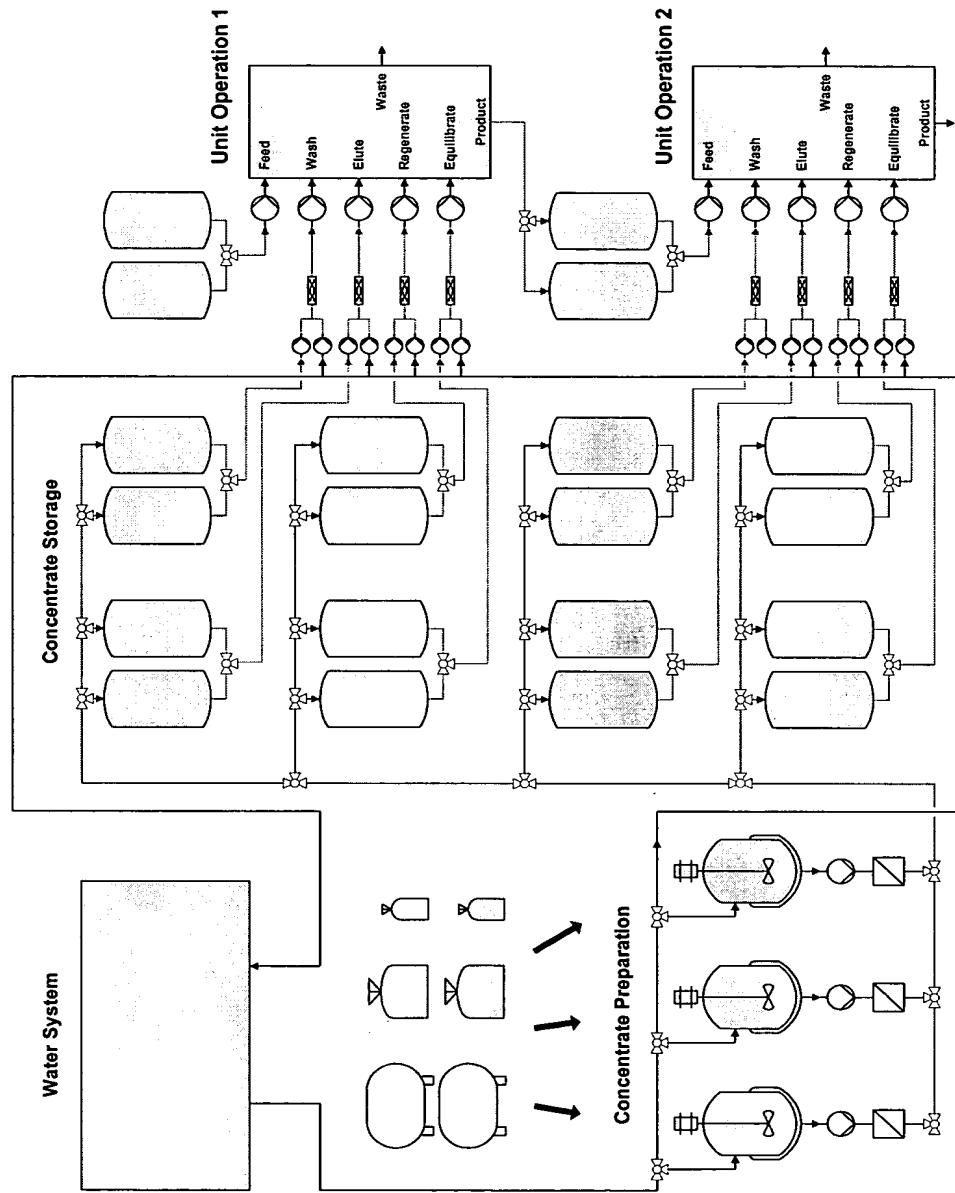


FIG. 1

Downstream Plant with Continuous Solution Blending

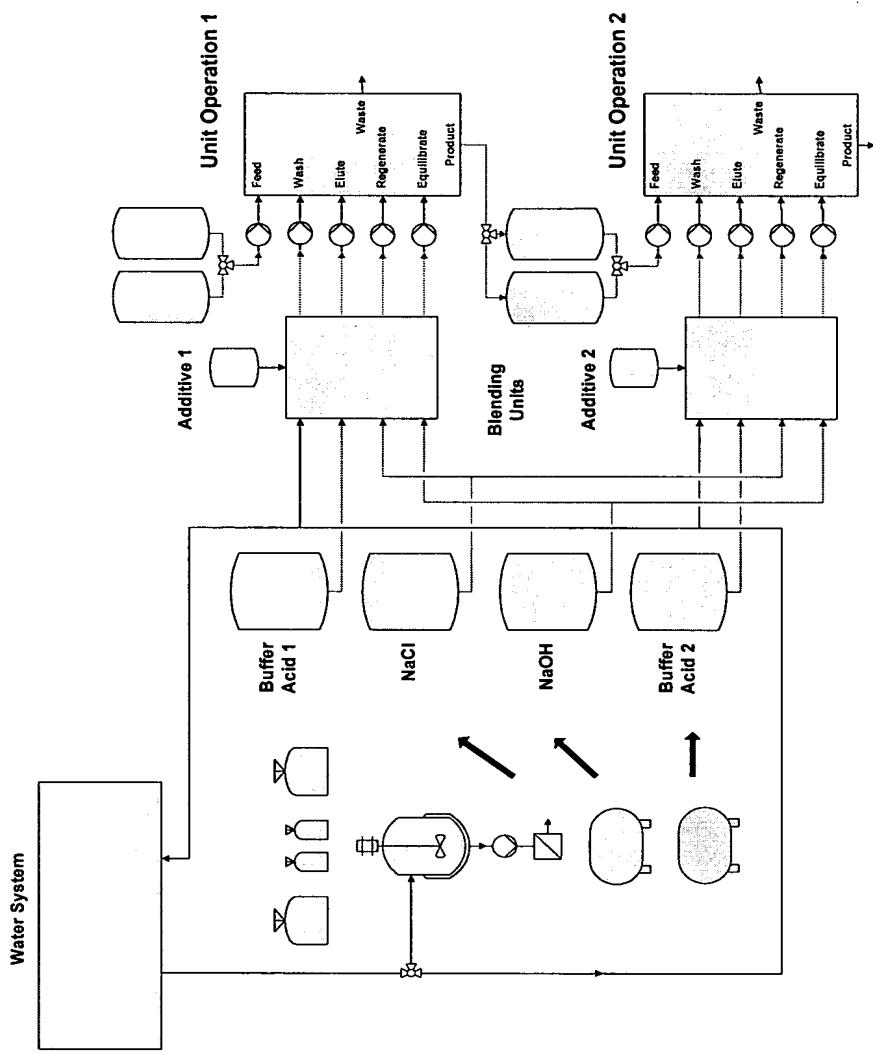


FIG. 2

Typical buffer blending unit for direct online blending

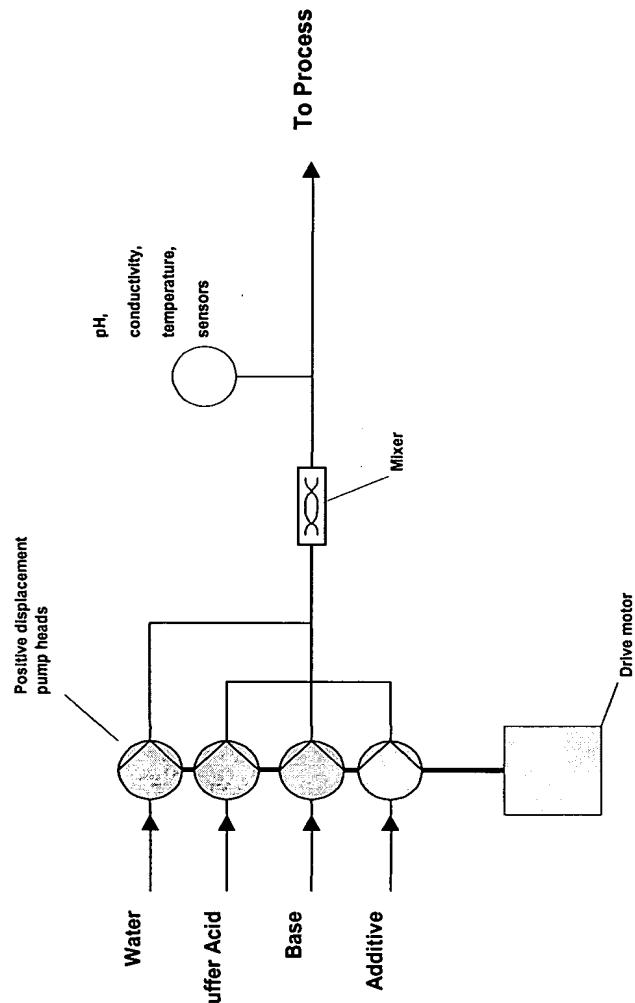


FIG. 3

Typical buffer blending unit with inline mixing tank

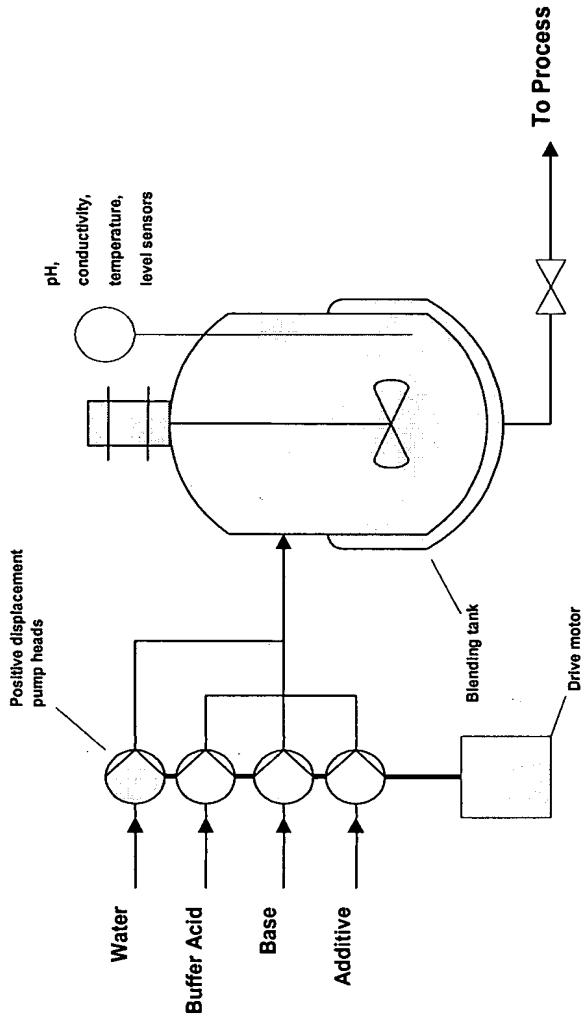


FIG. 4

Facility Elements of a Typical Biopharmaceutical Production Plant

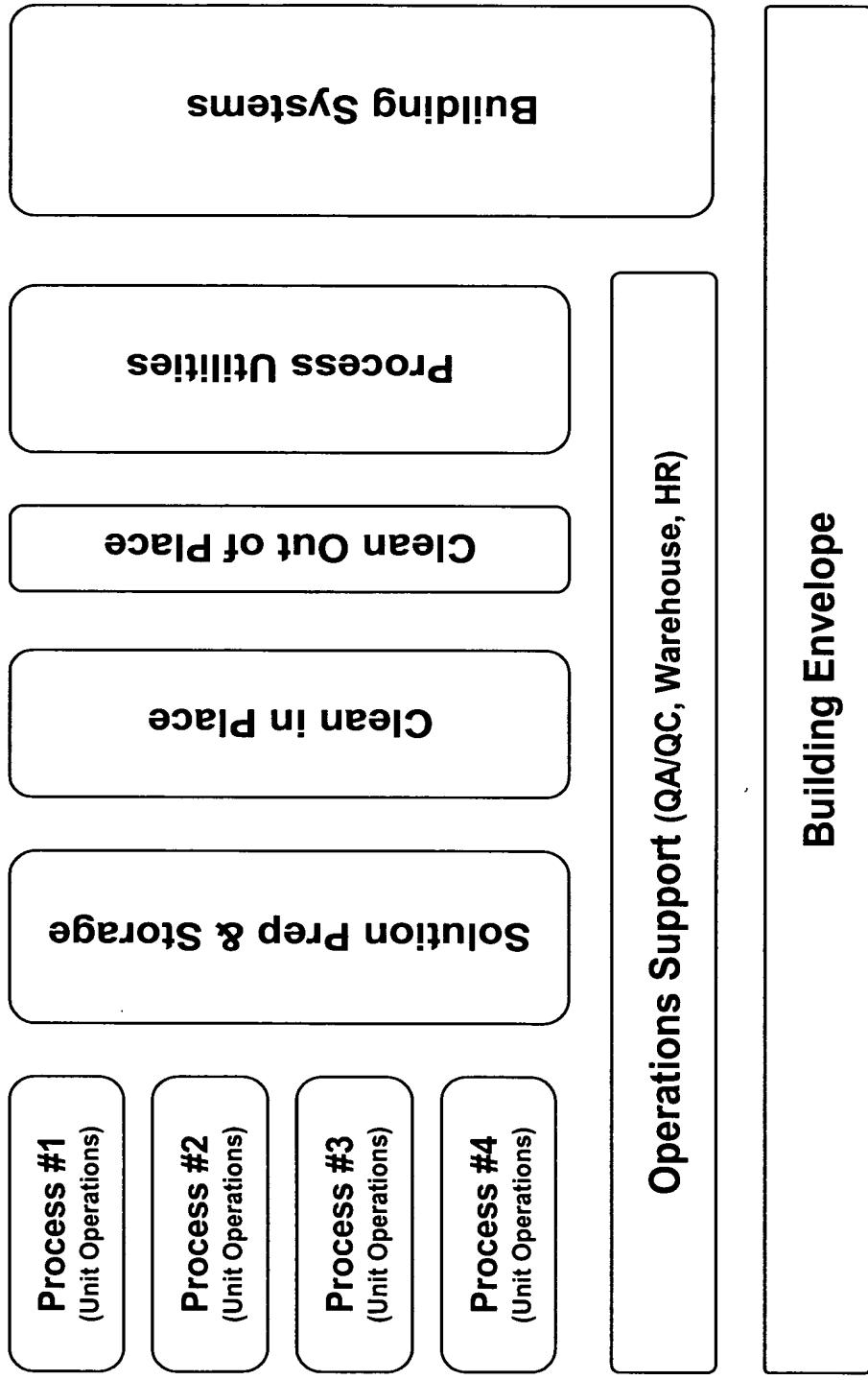


FIG. 5

Transgenic human serum albumin processing scheme

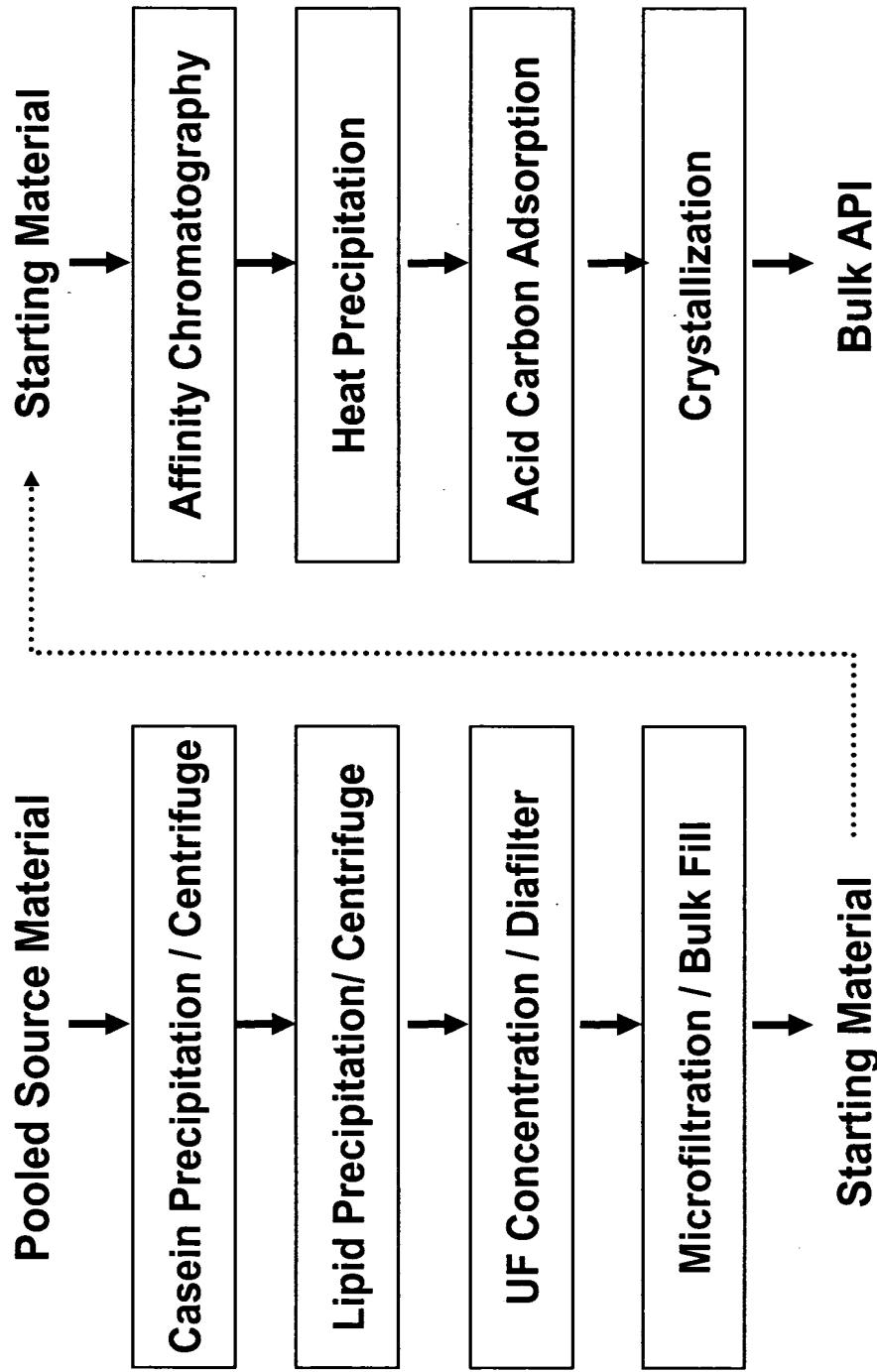


FIG. 6

Capital cost comparison between conventional batchwise and continuous blending processes

	Conventional Design	Continuous Blending
Facility	\$10.0 MM	\$8.4 MM
Process equipment	\$12.9 MM	\$12.9 MM
Solution Prep & CIP	\$8.4 MM	\$4.1 MM
Water system	\$5.9 MM	\$5.7 MM
Total	\$37.4 MM	\$31.3 MM

FIG. 7

hSA Process SMB Design

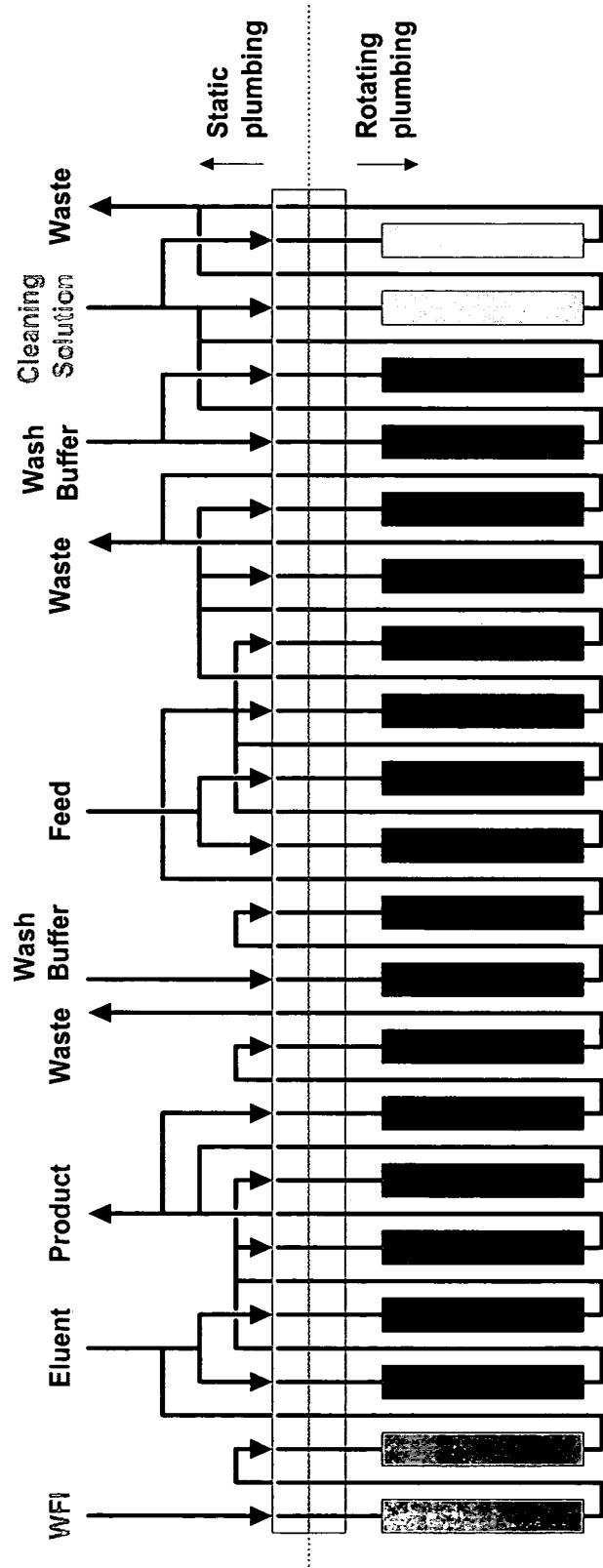


FIG. 8

Transgenic hSA Purification Process

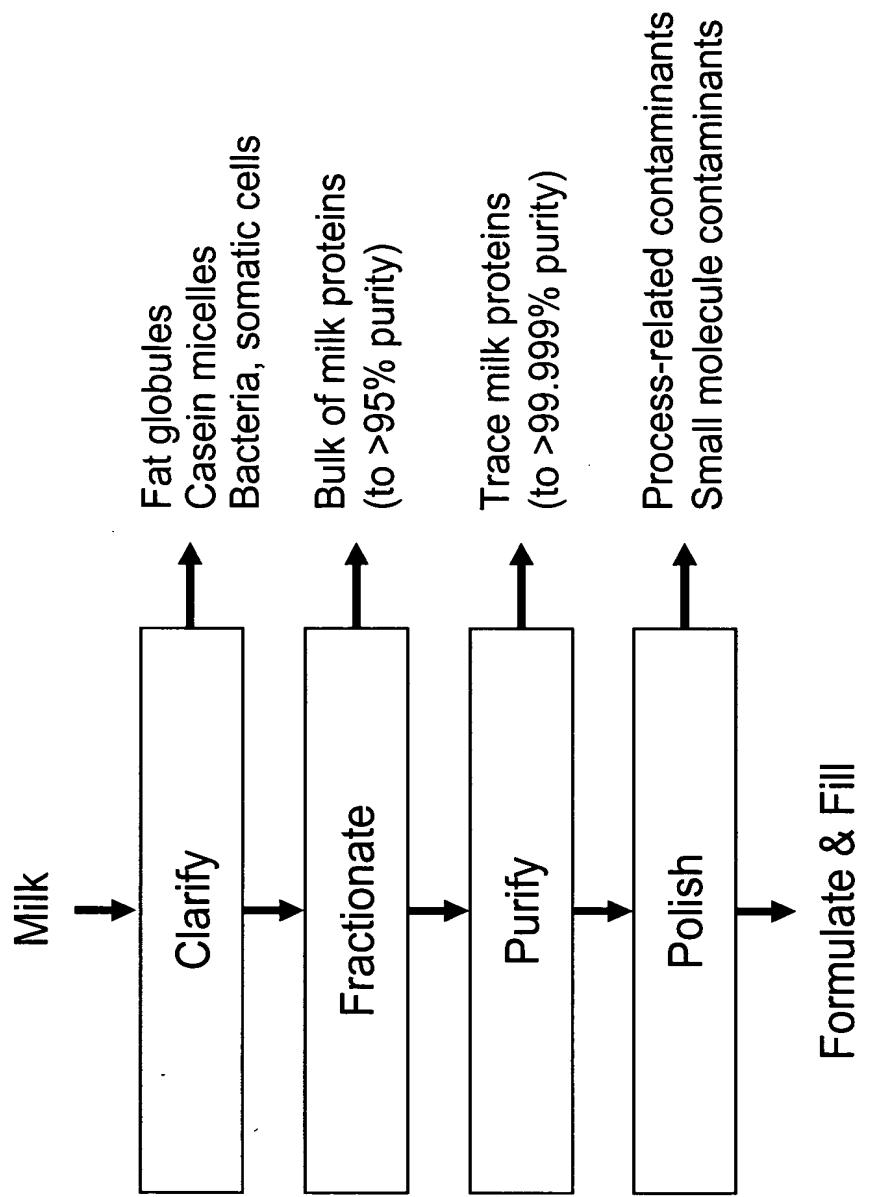


FIG. 9

Downstream Plant with Continuous Solution Blending

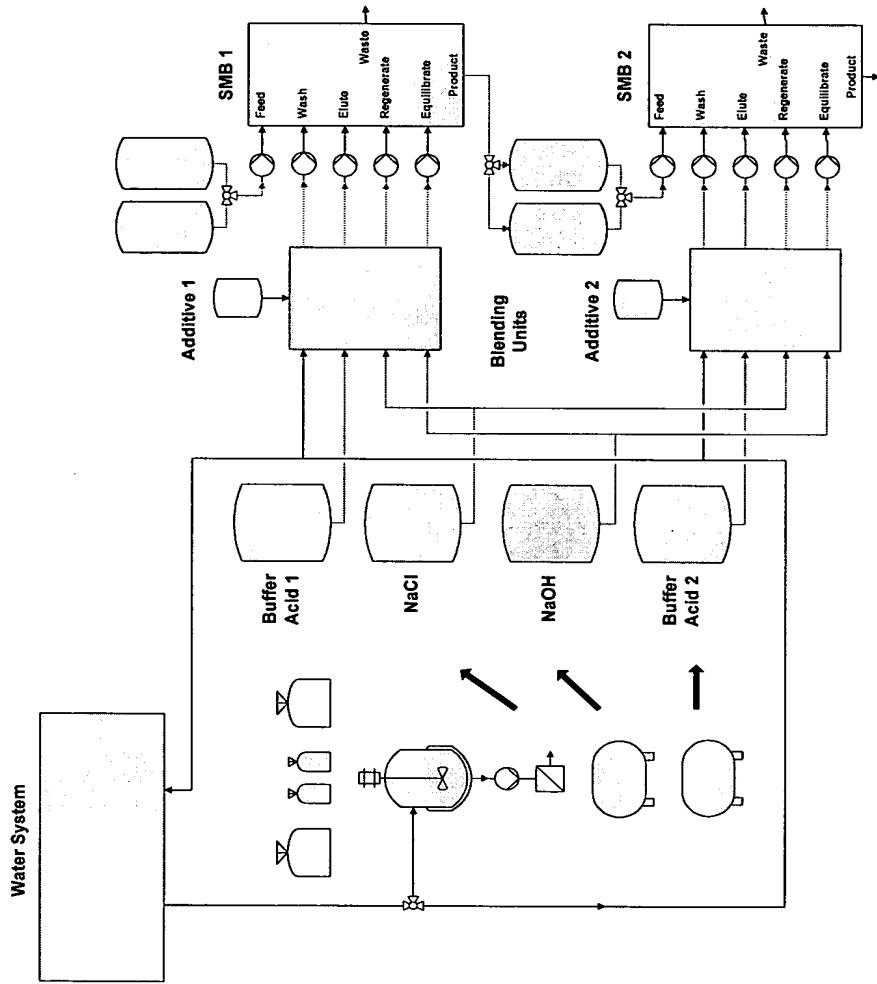


FIG. 10